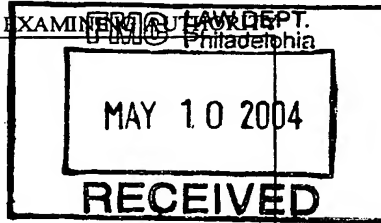


From the

INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

IPEA/US
Philadelphia

To:
JOHN M. SHEEHAN
FMC CORPORATION
1735 MARKET ST.
PHILADELPHIA, PA 19103



PCT

WRITTEN OPINION

(PCT Rule 66)

Applicant's or agent's file reference 60285-PCT1		Date of Mailing (day/month/year) 04 MAY 2004
International application No. PCT/US03/20114		REPLY DUE within 2 months/days from the above date of mailing
International filing date (day/month/year) 25 June 2003 (25.06.2003)	Priority date (day/month/year) 26 June 2002 (26.06.2002)	
International Patent Classification (IPC) or both national classification and IPC IPC(7): C02F 1/72 and US Cl.: 210/759, 763, 747, 908; 405/128.75		
Applicant FMC CORPORATION		

1. This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2 (a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☒ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension. See rule 66.2(d).~~

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 26 October 2004 (26.10.2004).

Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Frank M. Lawrence <i>Frank Lawrence</i> Telephone No. 571-272-0987 444-04
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WRITTEN OPINION

International application No.

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I. Basis of the opinion

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
 pages 1-27, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.
- ☒ the claims:
 pages 28 and 29, as originally filed
 pages NONE, as amended (together with any statement) under Article 19
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.
- ☐ the drawings:
 pages NONE, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.
- ☐ the sequence listing part of the description:
 pages NONE, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages NONE
- ☐ the claims, Nos. NONE
- ☐ the drawings, sheets/fig NONE

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed."

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V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims <u>6-8, 13-17</u>	YES
	Claims <u>1-5, 9-12</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-17</u>	NO
Industrial Applicability (IA)	Claims <u>1-17</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Claims 1-3 and 9-12 lack novelty under PCT Article 33(2) as being anticipated by US 5,741,427 (WATTS et al). WATTS et al teaches a method for the remediation of soil or groundwater comprising adding a peroxide and a Fe(II) EDTA chelate or Fe(III) salt to remove pesticides and other contaminants (see abstract, col. 3, lines 30-46, col. 4, lines 12-51, claims 1, 3).

Claims 1-5, 9 and 16 lack novelty under PCT Article 33(2) as being anticipated by US 5,700,107 (NEWTON). NEWTON teaches a method of soil remediation comprising adding a complexing agent that includes a chelating agent, a salt of iron, and a persulfate such as sodium persulfate to remove pesticides and other contaminants (abstract, col. 1, lines 52-67, col. 2, lines 24-49, col. 4, lines 1-16).

Claims 6-8 and 13-15 lack an inventive step under PCT Article 33(3) as being obvious over NEWTON. NEWTON discloses all of the limitations of the claims except that the peroxygen compound is a sodium or potassium monopersulfate or a combination of di- and monopersulfate, and that preferred amounts of chelating agent and peroxygen compounds are used. It is submitted that one having ordinary skill in the art would know to use any available persulfate that is known in the art to be capable of oxidizing contaminants in soil based on the teaching of sodium persulfate in the patent. Also, the amounts of peroxygen and chelating agents are considered to be parameters that would have been routinely optimized by one having ordinary skill in the art at the time of the invention based on the nature of contamination and the desired level of decontamination.

Claim 17 lacks an inventive step under PCT Article 33(3) as being obvious over NEWTON in view of US 6,019,548 A (HOAG et al). NEWTON discloses all of the limitations of the claim except that the chelating agent, transition metal, and peroxygen compound are added sequentially. HOAG et al teach an in situ treatment method for soil remediation, comprising adding permanganate and persulfate to the soil either sequentially or together as an aqueous solution. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of NEWTON by adding the components sequentially in order to provide a method of treatment in the situation where a premix is costly or not readily available.

Claims 1-17 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

----- NEW CITATIONS -----

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VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

The description is objected to as containing the following defect(s) under PCT Rule 66.2(a)(iii) in the form or contents thereof: a period should be added at the end of line 30 on page 4.

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

TIME LIMIT:

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.